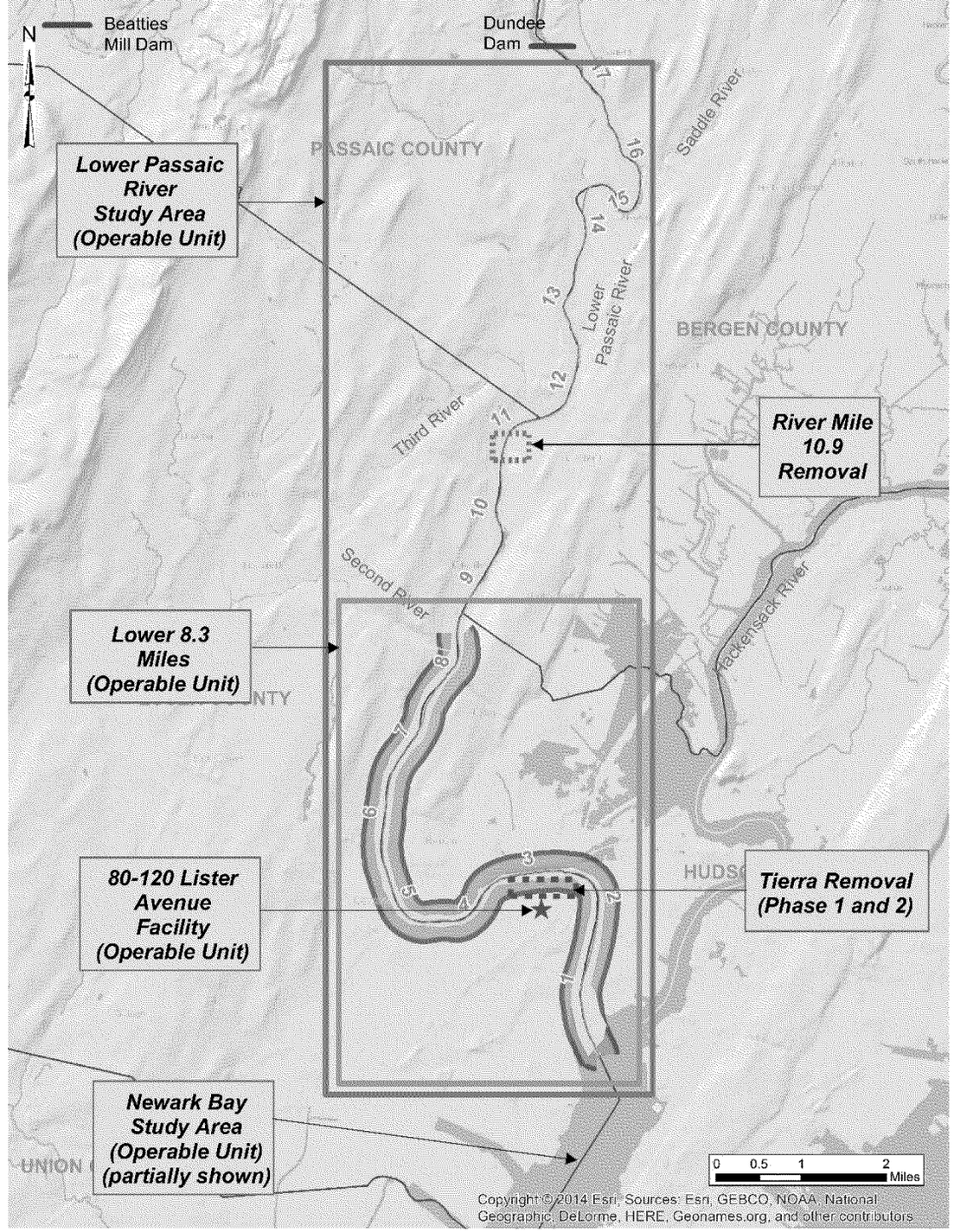
Outline

- Selected Remedy Concept Design
- Critical Design Issues
- Performance Standards
  - Engineering Performance Standards
  - Quality of Life Performance Standards
- Next Steps/Schedule

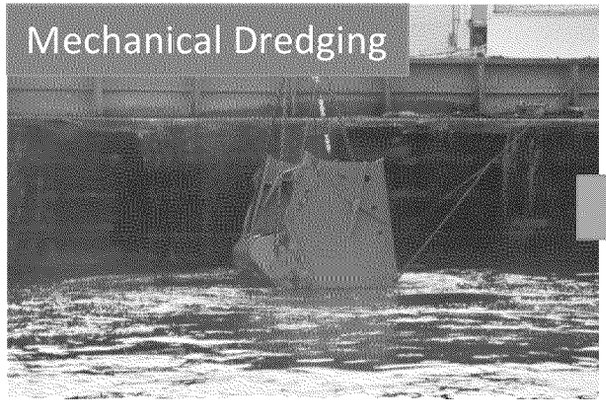
Selected Remedy Concept Design



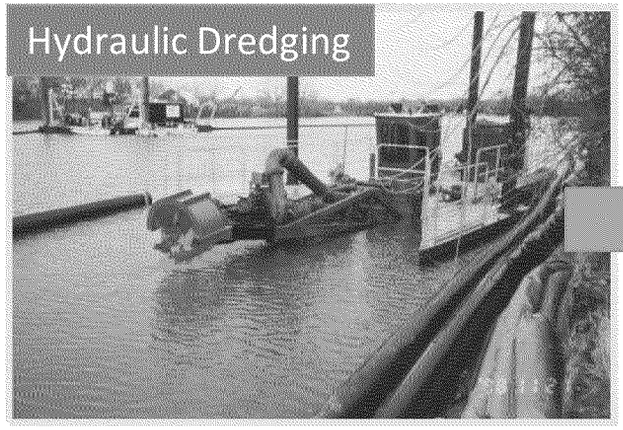
Selected Remedy Summary

- Engineered cap bank-to-bank over lower 8.3 miles (w/maintenance)
- Dredge enough contaminated fine sediments to:
  - Prevent additional flooding after cap is installed
  - Allow for navigation channel in RM 0 to RM 1.7
    - 30 ft below MLW from RM 0 to RM 0.6
    - 20 ft below MLW from RM 0.6 to RM 1.7
  - Institutional controls and Long Term Monitoring

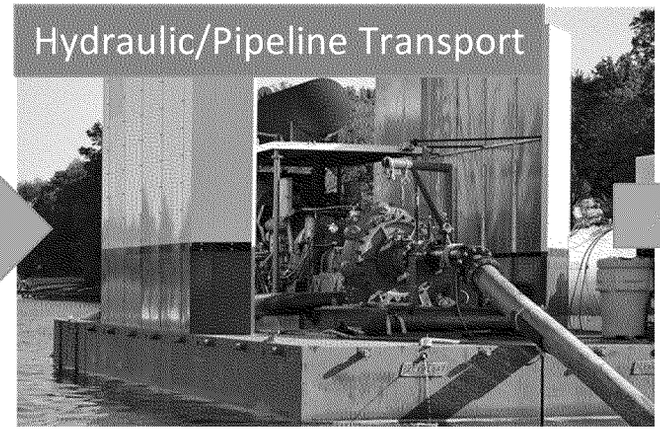
Off-site Disposal Process



Courtesy of John Henningson; Henningson Environmental Services, Inc.



Source: Bean Environmental, Cable Arm



Source: https://www.jfbrennan.com/environmental/material-transport

Off-site Disposal Process (continued)

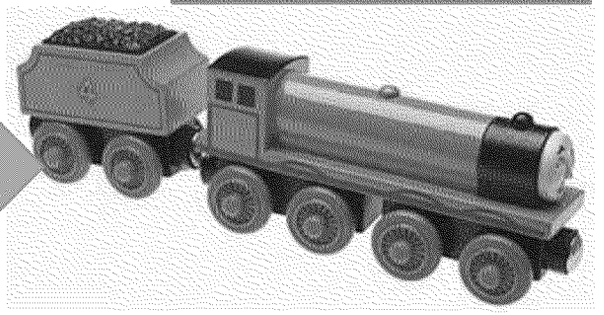
Dewatering

Courtesy of Stuyvesant Environmental Contracting, LLC (Boskalis-Dolman)

Dewatered Material for Treatment / Disposal

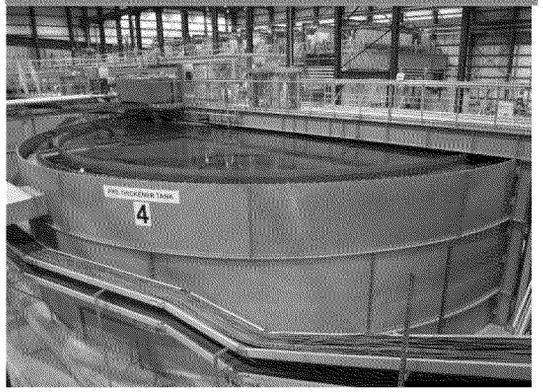
Courtesy of Stuyvesant Environmental Contracting, LLC (Boskalis-Dolman)

Off-site Disposal



http://www.dfo-mpo.gc.ca/regions/central/pub/fact-fait-mb/mb1_e.htm

Water Treatment Plant

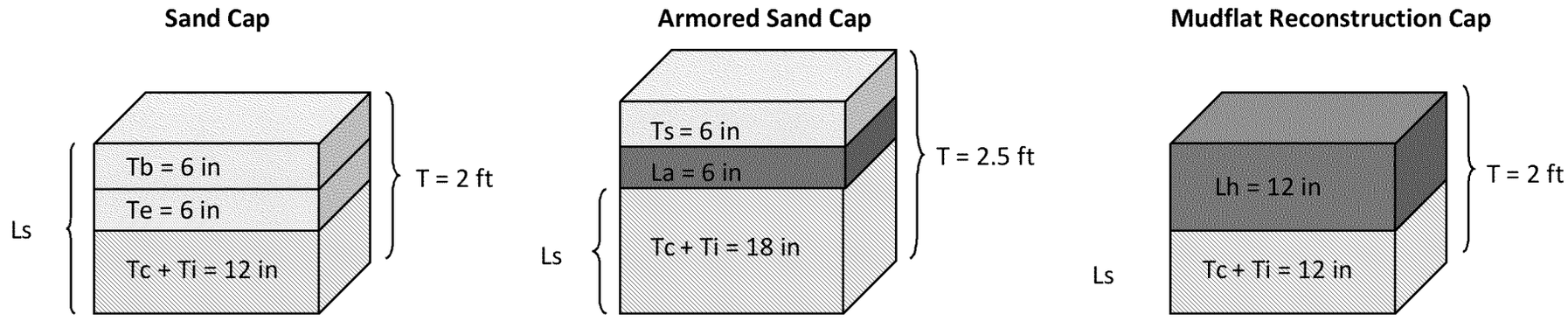


Courtesy of Stuyvesant Environmental Contracting, LLC (Boskalis-Dolman)

Waste Characterization

- EPA has determined that Passaic River sediment is not a listed waste
- Material must be managed as hazardous waste if it exhibits a RCRA hazardous characteristic (reactivity, ignitability, flammability, toxicity)
- Material must be treated prior to disposal if it contains Underlying Hazardous Constituents (UHCs) which exceed 10X the Universal Treatment Standard (UTS)
- Beneficial use of suitable dredged material (e.g., sand)

Capping Concepts



Legend

La – Armor Layer

Lh – Habitat Layer

T – Total Thickness

Sand Layer (Ls) Components:

Tb – Bioturbation Component

Te – Erosion Component

Tc – Consolidation Component

Ti – Chemical Isolation Component

Ts – Smoothing Component

Critical Design Issues

Critical Design Issues

- Bridge Constraints
- Dredging Method
- Sediment Processing Facility Siting
- Cap Performance
- Recontamination of Cap
- Shorelines (limits, stability)
- Utilities, Bridge abutments, other structures
- Navigational/recreational use
- Offsite Transportation & Disposal

Performance Standards (Current Status)

Performance Standards

Purpose of the Performance Standards is to:

- Inform design and implementation of EPA's selected remedy.
- Support achieving RAOs set forth in the ROD.
- Minimize short-term impacts to surrounding community.
- Promote accountability with Stakeholders

Engineering Performance Standards

The engineering performance standards include performance standards for:

- Cap Design and Construction
- Resuspension for Dredging and Capping
- Productivity for Dredging and Capping

Quality of Life Performance Standards

The quality of life performance standards may include performance standards for:

- Air Emissions
- Odor
- Noise
- Lighting
- Navigation
- Traffic

Engineering Performance Standards

Interaction among the Engineering Performance Standards

Designed to balance each other - each standard sets requirements that potentially impact those required by the other two standards.

- The Performance Standard for Cap Design and Construction is critical to achieving the long-term goals .
- The Resuspension Performance Standards for Dredging and Capping will prevent short-term releases from affecting the long-term goals and limit upstream and downstream migration of COCs.

Interaction among the Engineering Performance Standards (continued)

- The Productivity Performance Standards for Dredging and Capping
  - – Desirable to complete remedial action within ROD estimate (6 years)
  - – Reduce short term impacts to river and adjacent communities.

- Productivity important but not to be achieved at the expense of the Cap Design and Construction or Resuspension standard.

Cap Design and Construction

- Provides flexibility to RD Team to design and deploy cap equivalent to EPA's concept design
- An equivalent cap is one that may result in smaller sediment removal volume provided that:
    a) Cap is protective
    b) Required depths of the navigation channel below RM 1.7 are achieved
    c) flooding potential is not increased from current conditions.

Cap Design and Construction (cont)

What EPA is developing to help guide the RD Team:

- Criteria to be met
- Assumptions
- Measurements
- Analyses and Evaluations
- Required Response / Corrective Action

Resuspension for Dredging and Capping

Issues to consider:

- Water column monitoring measurement:
  - Dioxin and other COCs measurement
  - Conductivity, temperature, water depth, TSS, acoustic backscatter and turbidity
  - Surrogate of COCs for laboratory rapid turn-around
  - River flow
  - Frequencies
  - Flux to Newark Bay and upper nine miles
- Tiered contaminant thresholds/levels for action
- Monitoring station locations (e.g., near-field and far-field)

Productivity for Dredging and Capping

Purpose:

- Establish a minimum annual productivity quota to determine measurable targets for the remedial work

The standard will include the following:

- Required/target dredging productivity
- Monitoring and Record Keeping

Productivity for Dredging and Capping (cont)

Dredging productivity is influenced by:

- Dredging Method – mechanical vs. hydraulic
- Sediment Processing Facility
- Construction Season

Other key factors:

- Capping productivity is limited by how much area is “cleared” by dredging
- Sequence of work may affect duration of remedy
- Due to physical constraints in the river, dredging/capping production varies depending on location and dredging/placement method
- Changes in volume and length of fish window will impact dredging duration differently for different sequences and dredging/capping methods

Quality of Life Performance Standards

Quality of Life Performance Standards

- Standards may be developed for the following areas: Air emissions, Odors, Noise, Lighting, Navigation / Use of River, and Traffic
- RD and RA will comply with EPA Region 2 Clean and Green Policy

  https://www.epa.gov/greenercleanups/epa-region-2-clean-and-green-policy
- Receptor analysis should be considered when developing RD
- Consider need to establish baseline conditions during RD
- Develop complaints management and tracking plan to address complaints in a timely manner

Air Emissions

- Emissions will comply with state and federal emission limits

- During RD
  - Document compliance with regulations through modeling, calculations, or other efforts

- During RA
  - Minimize emissions that potentially impact human health
  - Conduct monitoring to verify compliance

Odors

- Minimize impact on use of property as per N.J.A.C. 7:27.5

- During RD:
  - Develop approach to minimize release of odors
  - Identify locations/activities with greatest potential forreleases
  - Develop contingency plans

- During RA
  - Minimize / control odors to the extent practicable by use of BAT

Noise

- Levels shall not exceed established limitations for daytime and nighttime operations.

- During RD
  - Document through modeling, calculations, or other efforts
  - Identify areas/activities having the greatest impacts
  - Develop contingency plans.

- During RA
  - Manage operations to minimize impacts
  - Limit percussive noises to day time hours, where practicable

Lighting

- During RD
  - Incorporate requirements for downlighting, shrouds, natural screening, etc.
  - Identify areas/activities that have the greatest lighting impacts
  - Develop contingency plans

- During RA
  - Manage operations so light intrusion does not interfere with use of property
  - Ensure that lighting does not pose a safety risk to vehicular traffic (e.g., glare, blinding)

Navigation / Use of River

- During RD
  - Maximize access to the river to the extent practicable

- During RA
  - Minimize limitations on river access; communicate restrictions in a timely manner

Traffic

- During RD
  - Plan for facility construction and operations phases
  - Address on-site parking, truck staging, sequence of arriving / departing shipments, truck routes, penalties for use of alternative routes
  - Consider traffic at remote facilities (if any)

- During RA
  - Monitor and manage traffic at the site to ensure compliance with the traffic management plan

Performance Standards Next Steps/Schedule

- Draft – Spring 2017
- Questions?